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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/044,130	01/10/2002	Steven D. Burch	8540G-000081	8162
27572	7590	01/06/2004		
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303				
			EXAMINER RIDLEY, BASIA ANNA	
			ART UNIT 1764	PAPER NUMBER

DATE MAILED: 01/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AS

Office Action Summary	Application No.	Applicant(s)	
	10/044,130	BURCH ET AL.	
	Examiner	Art Unit	
	Basia Ridley 	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) 1-28,37-48,50 and 52 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 29-36,49 and 51 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim(s) 29-36, 49 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoyama (USP 6,290,913) in view of Hwang et al. (USP 4,522,894).

Regarding claims 29-36, 49 and 51 Aoyama discloses a method for producing hydrogen reformat gas comprising reacting water supply stream and a fuel supply stream in a reformer and passing thus formed reformat gas to preferential oxidation reactor, wherein at least a portion of water used in said reformer is preheated in the preferential oxidation reactor (Fig. 1).

Aoyama does not disclose the reformer being an autothermal reformer, wherein air is mixed with said water supply before entering said autothermal reformer. Further the reference does not disclose a second water stream being preheated in a vaporizer and mixed with said portion of water preheated in the preferential oxidation reactor.

Hwang et al. (Fig. 2) teaches that autothermal reformers are known in the art where they offer advantage over steam reformers by allowing for thermally balanced operation between endothermic steam reforming reaction and partial oxidation reaction. Preheating of water which is mixed with air before entering the autothermal reforming zone in a vaporizer will further improve the thermal balance of the system.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use autothermal reformer of Hwang et al. in the system of Aoyama for the purpose of improving the thermal balance of the system.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Response to Arguments

4. Applicant's arguments filed on 8 October 2003 have been fully considered but they are not persuasive.

5. The applicant argues that Aoyama does not use term preferential oxidation reactor but rather a CO selective oxidizing unit, and that it is water and methanol stream not just water stream which is preheated in said CO selective oxidizing unit. This is not found persuasive. It is examiner's position that both, the preferential oxidation reactor and the CO selective oxidizing unit are used for the same process: removal of CO by oxidation from a stream comprising CO and H₂. Therefore both units preferentially and selectively oxidize CO rather than H₂ in said stream. Regarding alleged differences between preferential oxidation reactor of Aoyama and CO selective oxidizing unit recited in rejected claims mere arguments and conclusory statements of counsel, which are unsupported by factual evidence, are entitled to little probative value. *In re*

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Linder, 457 F.2d 506, 508-09, 173 USPQ 356, 358 (CCPA 1972); *In re De Blauwe*, 736 F.2d 699, 705, 222 USPQ 191, 196 (Fed. Cir. 1984); *In re Wood*, 582 F.2d 638, 642, 199 USPQ 137, 140 (CCPA 1978). Further, the disclosure of Aoyama that water and methanol are preheated in the CO oxidizing unit does not distinguish over claim language requiring that said water is preheated in the CO oxidizing unit. The rejected claim(s) do not exclude processes in which other streams are also preheated in the CO oxidizing unit, as the claimed transitional term “comprising” permits the inclusion of other steps, elements, or materials, including both, those disclosed but not claimed by applicant and those neither disclosed nor contemplated by applicant.

6. The applicant argues that Hwang et al. does not show a vaporizer. This is not found persuasive, as Hwang clearly shows a vaporizer 30 (see Hwang et al., C17/L48-54).

7. The applicant argues that Aoyama and Hwang can not be combined because they disclose different sources of heat for preheating of the water. This is not found persuasive, because the field of relevant art need not be drawn so narrowly. Since both, the instant invention and the references process of steam reforming, one of ordinary skill in the art would recognize that a various sources of heat can be used to preheat various process streams, and therefore, when looking for modification of a reforming process, one of ordinary skill in the art would not limit his search only to processes using one specific source of heat.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


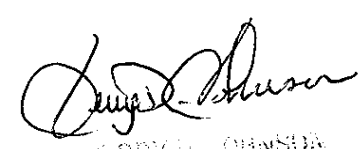
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Basia Ridley, whose telephone number is (571) 272-1453. The examiner can normally be reached on Monday through Thursday, from 9:00 AM to 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola, can be reached on (571) 272-1444.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.

Basia Ridley
Examiner
Art Unit 1764

 
PERRY D. JOHNSON
PRIMARY EXAMINER
GROUP 1109

BR
December 28, 2003